

Leica

PHOTOGRAPHY

1962 • Number 2 • 40¢





Leica

PHOTOGRAPHY®

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COVER

Alfred Eisenstaedt

For relaxation between Life assignments, Alfred Eisenstaedt has a hobby. He takes pictures. This very summery one was taken at Martha's Vineyard in Massachusetts with an M3, Visoflex and 135mm lens on regular Daylight Kodachrome.

◀ INSIDE COVER

Juliana Wang

This Rousseau-like king of beasts would appear to be one of the few untroubled kings left in the world. The photographer waited and took pictures during four weekends to get just the picture she wanted. Shot in daylight, with an M3, Visoflex II and 200mm Telyt on Plus-X, f/4 at 1/500th.

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The editors are happy to consider original articles on photography with the Leica and photographs taken with Leica cameras and lenses. All manuscripts and photographs should be accompanied by stamped, self-addressed return labels.



one-man-show

THOMAS D. McAVOY, photojournalist

Photos Courtesy Life Magazine



The Kremlin, 1947

Flower Market, 1947 ►

The first issue of LIFE magazine, some 26 years ago, listed Thomas D. McAvoy among its four original staff photographers.

A man whose camera work began classically with a box-camera at the age of nine, McAvoy first became a working photographer 10 years later with the Baltimore American. Moving to Washington, D.C., he went to work for the Washington News, and in 1935 left to become a full-time freelance photographer with Time magazine claiming first right to his pictures.

As early as 1931 he had begun using a Leica to cover news stories, encouraged by his fascination with the work of Dr. Eric Salomon (see Leica Photography No. 4, 1959). In 1935, McAvoy reports, he took the first "candid" shots of President Franklin

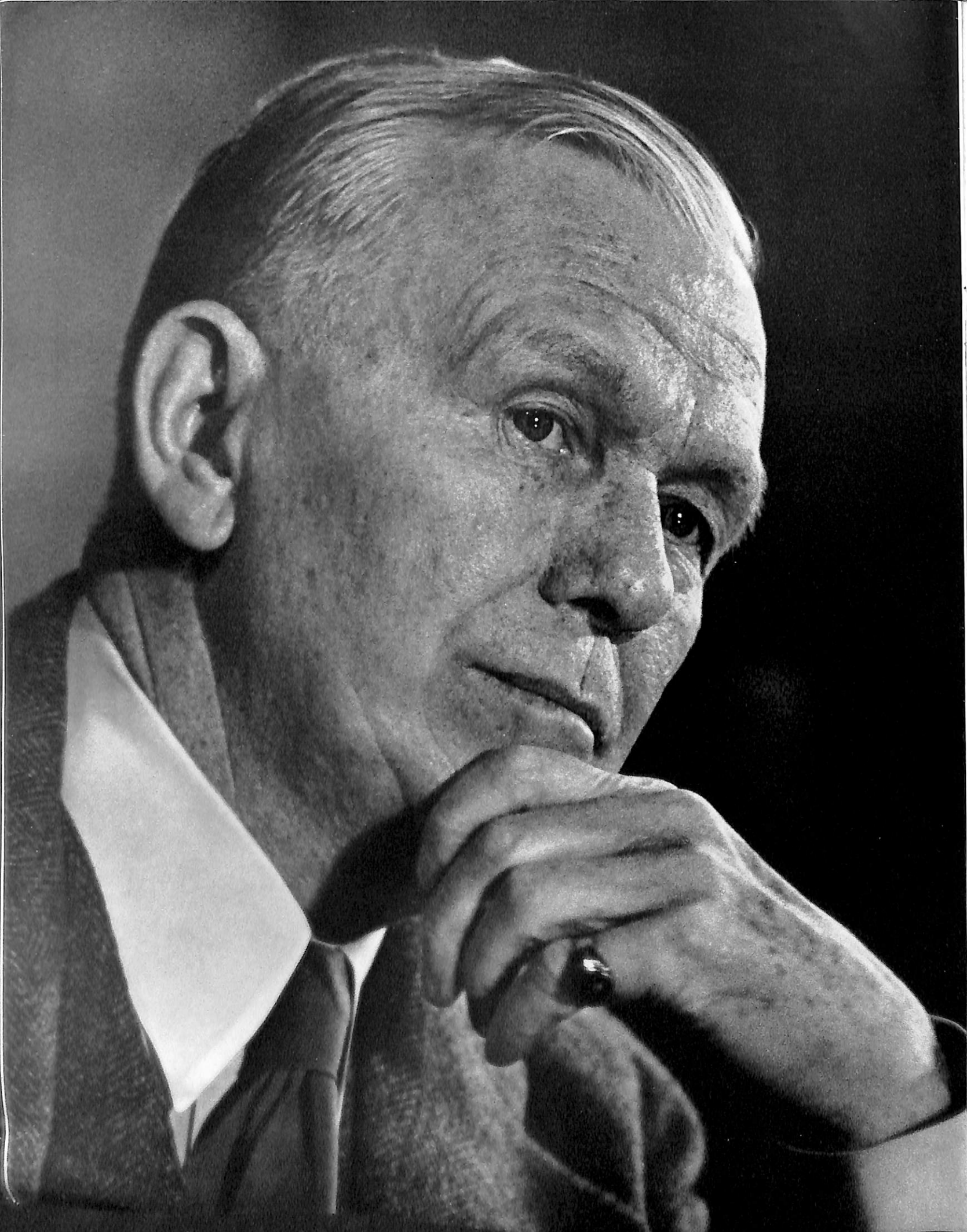
D. Roosevelt in his office. For this early existing-light work, he used film which had been especially hypersensitized with ammonia fumes.

And it was in August 1935 that he joined Time magazine officially, working on the then-experimental LIFE project until that magazine was launched, and at that time transferring to its staff.

During his early coverage of Washington, McAvoy and his Leica racked up a great many photographic "firsts." Among these were the first pictures taken of the Senate and the House in session.

Even Mrs. McAvoy scored a photographic "first" with her husband's help and Leica. She made a picture of the United States Supreme Court in session. Her husband rigged a hidden Leica for her in a black handbag. She, had, of course, to make her pictures







Franklin Delano Roosevelt, 1935. (First available—light “candid.”)

◀ **George Catlett Marshall**

Jackson Day Dinner, 1939





Harry Hopkins, Commerce Committee Hearing, 1939

Dr. Konrad Lorenz and Friends, 1955 ►

"blind" and only one at a time to avoid calling attention to herself. It took seven tries (on seven separate days) to get the wanted results.

In the '30's the Leica was still an attention-getter and the target of quips from observers at all levels. President Roosevelt himself used to tease McAvoy about his "toy" — but soon came to respect its ability to make pictures.

On one of his far-ranging picture trips for LIFE, McAvoy attended the first Foreign Minister's Conference in Moscow in 1947 — a time when photography was still highly restricted in Russia. But, despite numerous minor clashes with police, he managed to get enough pictures of the people, the ballet, the Opera, and other facets of Russian life to provide his editors with material for six separate stories.

Tom McAvoy's Leica pioneered 35mm news photography on the Washington scene in an era that was exciting both politically and photographically. It

brought atmosphere, intimacy and realism to pictures that showed political leaders as living human beings rather than as posed figures in a "hold-it-please" tableau. McAvoy and his colleagues on LIFE early recognized the value of 35mm photography, and so helped to give magazine and news photography the vitality which is today so evident that it is too often taken for granted.

The staying power of McAvoy's early Leica work in Washington is such that it will feature prominently in a new television series. Beginning next fall, the American Broadcasting Company will present a 26-week series entitled "F.D.R." McAvoy's still pictures of Franklin D. Roosevelt and members of his administration will be used extensively throughout the series.

Now semi-retired from the LIFE staff, Tom McAvoy lives in Dallas where he continues to do frequent LIFE assignments as well as editorial and advertising photography for others.



does your tripod just stand there? / *Norman Rothschild*

make it do something...with accessories

To the average photographer a tripod is something to be hauled out only when exposures longer than 1/25 second are needed. But a Leicaman with a Schiansky tripod, whether he knows it or not, owns a veritable stand-of-all-work. With accessories he can convert it to things as diverse as a projector stand and a "dolly" to add professional effects to his home movies.

copying

A favorite occupation of many Leica photographers, for instance, is the use of the Leica, plus Visoflex or Focoslides for close-ups and copying. For the latter an upright stand, such as that from the Valoy II enlarger is often used. This is fine in the studio, but what do you do if you wish to do your copying on location? One logical answer is the inexpensive Schiansky Copying Bracket 320 (Cat. No. 96,042). As shown in the illustration, this is fastened to the tripod and permits mounting your Leica in a vertical copying position. With a ball-and-socket head added to the Copying Bracket there is even more convenience, in field work, in aiming the camera at flowers, rocks, etc. The Schiansky tripod's center column makes it easy for you to establish proper camera-to-subject distance. Used on a reversed center column, the Copying Bracket offers a fine brace for low-angle shots near floor level. You'll find the Schiansky Copying Bracket a useful tool which weighs only 10¼ oz.

slide projection

You will never get full enjoyment from your slide shows if you mount your projector on a makeshift projection stand such as an odd table or chair. Such objects are seldom the right height, making it necessary to point the projector upwards. This results in

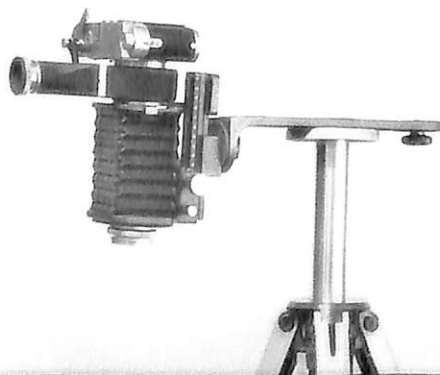
image distortion, and, when the projector is fairly close to the screen, as with short focal length lenses, the "keystone" distortion can become disturbing. What's more, for the increasingly-popular Leitz wide angle projection system (Leica Photography No. 1, 1962), image centering and level projection are imperative. While the Karba Projection Table (Cat. No. 19,690) is the ultimate in luxury stands, the Schiansky Projector Platform converts your tripod into an efficient projection stand at little cost. It offers a light but rigid projector support, is easily portable and easily squared up with the screen, thanks to the Schiansky's adjustable center column and legs.

home movies

One of the prime requisites of a movie is—naturally—action. This can be expressed by actual movement of the subject or by changes in the camera location and image sizes. To create both of these with professional skill, the camera must move smoothly from area to area, from long shot to close up and be ready instantly for rock-steady operation. Another interesting movie technique is the "dolly" shot, wherein the camera moves along with the action (following the hero down the hospital corridor, etc.).

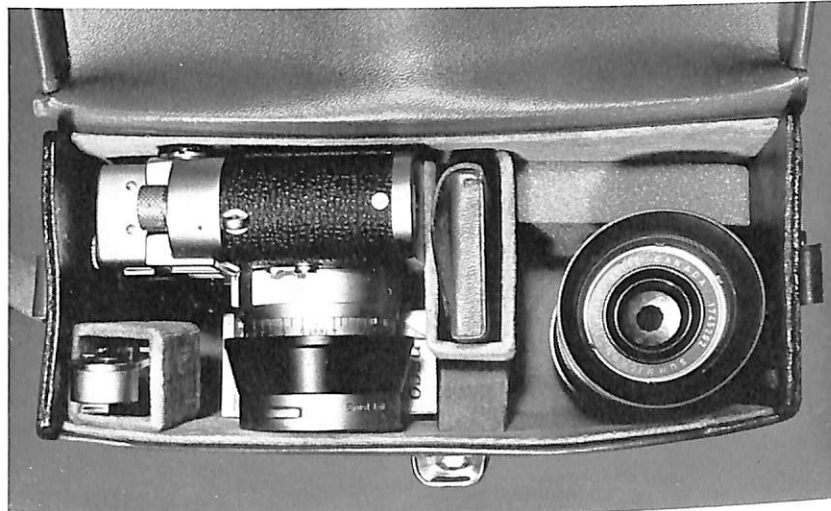
The Tripod Dolly 135 (Cat. No. 96,049) makes the larger Schiansky tripods into a wheeled platform which will hold even the largest studio cameras for easy mobility, or provide a rolling "dolly" for professional effects in Leicina movies.

Besides these specialized accessories which fit the tripods for specific uses, there are, of course, a variety of standard accessories available. Ball-and-socket heads, pan-and-tilt heads, sliding or geared columns and carrying cases will also add convenience and extra utility to your Schiansky tripod.



small combination case

travel light but well equipped



EFFICIENT DESIGN permits camera, meter, three lenses, three filters and extra film to be packed into a very small space.

Would you bother to carry a two-suitcase along on an overnight trip? Few of us would. It's much simpler to use a small "overnight" case for short trips where only a few things are needed.

A similar situation exists for the photographer who plans to do an afternoon's shooting. To take along a large case fitted with all his equipment is usually unnecessary. It would mean carrying useless weight and taking along unneeded lenses and accessories.

A good solution to the Leica photographer's problem of a not-too-much, not-too-little carrying case is the small Combination Case (Cat. No. 14,820). This handsome case of mocha-brown leather accepts an M2 or M3 body with meter attached, 35mm, 50mm and 90mm or 135mm lenses, some film and three filters. This provides an outfit flexible enough for nearly any picture-making, yet packs it into a case only $8\frac{5}{8} \times 7\frac{1}{4} \times 3\frac{7}{8}$ inches.

compact design

A Leica, with meter and 35mm, or 50mm lens attached is held in one side of the case, ready for instant removal and action. A separate compartment holds the Optical Viewing Unit for the 50mm Dual-

Range Summicron lens.

The two remaining lenses (either the 35mm or the 50mm and the 90mm or 135mm) are stored in a separate compartment on the other side of the case. The lenses are linked together by means of a unique double-bayoneted Lens Coupling Ring which comes with each case. This enables the lenses to be held back to back, in which position they can be stored in a minimum amount of space.

Removing a lens from the coupling ring for use is as simple as removing the lens from the camera. An eighth of a turn locks or unlocks the lens and ring.

filter pocket

Standard equipment with the case is a matching leather wallet which holds three filters of the size appropriate to the lenses carried (A36, E39, E41 or E43).

The small Combination Case is a well-thought-out accessory designed to provide top storage efficiency in a minimum space for those short-trip photo sessions where an extensive outfit is not necessary.

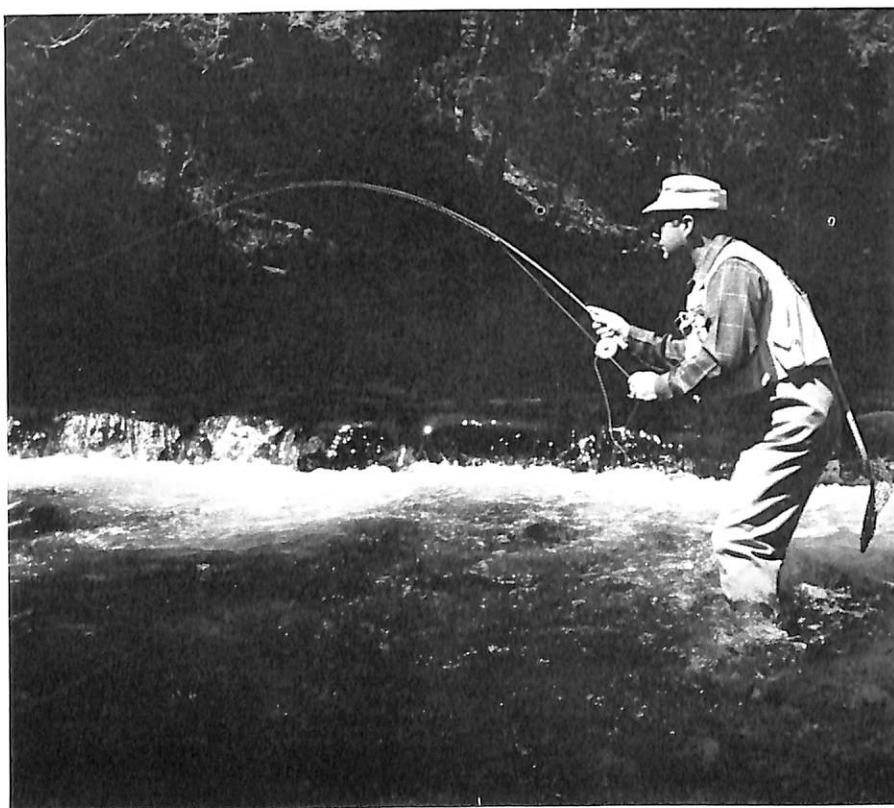
Price of the Combination Case (Cat. No. 14,820) complete with shoulder strap, shoulder pad, filter wallet and lens coupling ring, is \$37.50.

outdoorsman's camera / *Maury Delman*

expert says it must be rugged



INTREPID angler-writer-photographer braves swift current, but uses medium-long lens to get frame-filling shot without the need to go close and disturb the subject (not to mention the trout). Note that a monopod is being used for support.



Except for the combat photographer, no other professional lensman must exact such punishment on a camera as the photojournalist specializing in the outdoors. Within a six-months period he may find he has to take his camera and accessories to climes whose temperature registers below zero, and then to the steaming, rust-inviting jungles of Brazil.

Unlike the combat photographer whose routine work will be satisfactory with just a normal lens, the career photojournalist requires a variety of lenses. Nature's subjects are often unapproachable, they call for telephoto lenses; macro photography is needed to explain a subtle detail to a magazine's readership; wide angle, with its increased depth of field is valuable in close quarters. An angler battling a fish from the confines of a boat's cockpit is a prime example.

In addition to these broad demands, there are further conditions: The camera must be compact and light. Weight and volume are the nagging enemies of any globe-trotting outdoor specialist.

Further, his lenses must be fast to capture sudden action or register acceptable images in available light. (Many of nature's most spectacular incidents occur in either the sunup or sunset hours.)

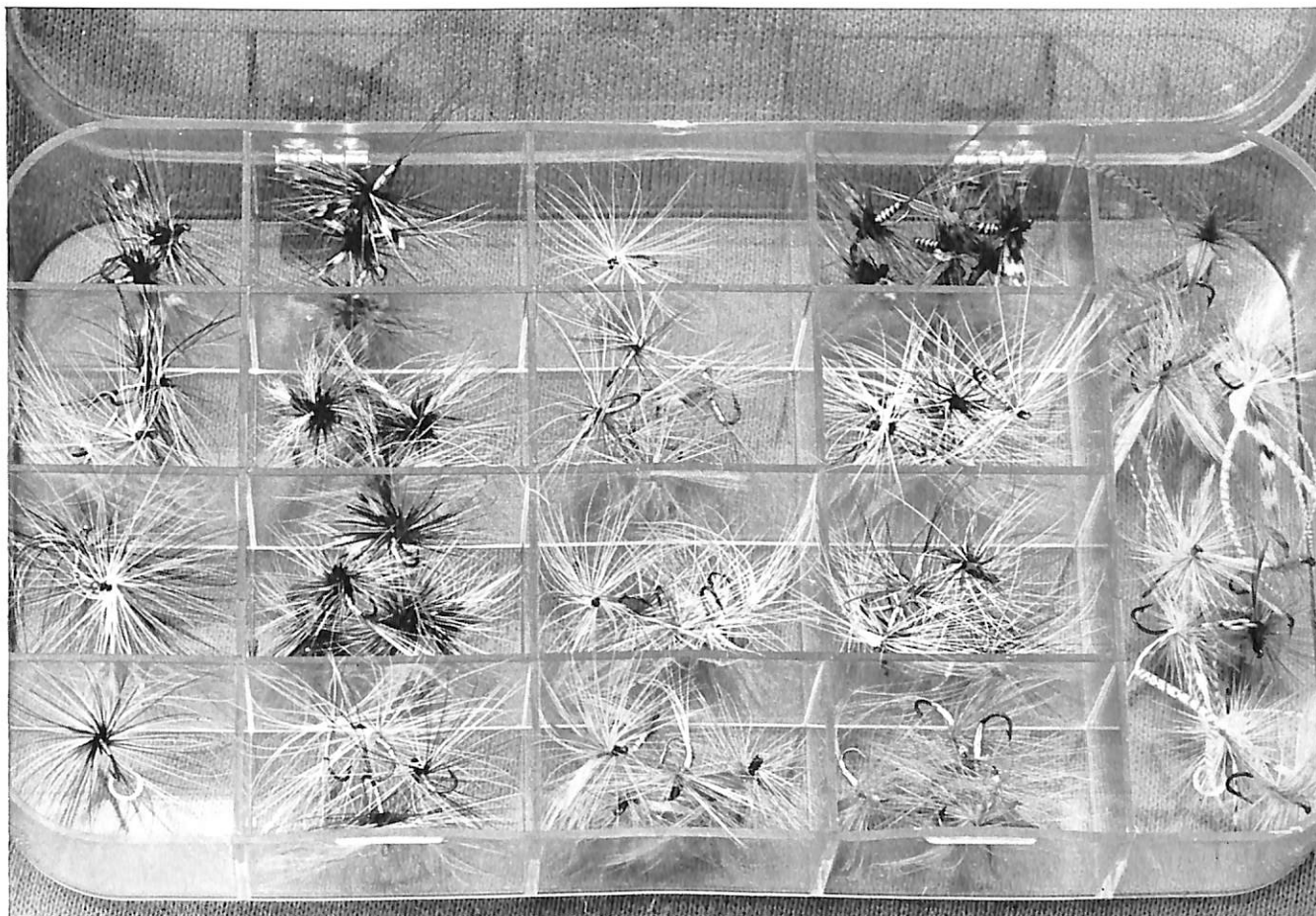
rangefinder for action

In the interest of following action, a rangefinder-type camera is obviously of significant advantage. A mallard's flight, or the instantaneous leap of a trout won't wait for the slow mechanics and focusing speed of ground-glass viewing.

As a professional outdoor writer trained in the use of 4" x 5" camera, I found that weaning myself away



INSTRUCTIVE CLOSE-UPS are a workaday part of the outdoor photojournalist's picture chores. Here a monopod is used for steadiness, and the Visoflex II (with 65mm lens) for convenience in focusing and framing when the subject and depth of field are small.



from the big format called for considerable re-education. Initially, I distrusted the 35mm negative which yielded contact sheets with "postage stamp" frames. However, trials and experimentation led me quickly to the smaller format. As my confidence in the smaller negative expanded, my format shrank. The slow evolution included $2\frac{1}{4} \times 2\frac{1}{4}$ along the way.

Frankly, adversity, too, played a vital role in leading me to the "Leica Way." In the past, I had actually suffered exhaustion from carrying view cameras in the rarefied air of the High Sierras. A single lens reflex camera I had tried had once literally frozen up in zero weather. Another developed a broken mirror mechanism when a horse slipped under me in treacherous talus underfooting. The fall bounced the camera on my chest, and priceless color transparencies of golden trout, made after the accident, were

ruined as a result. I, in turn, lost full assignment earnings and the good graces of an editor.

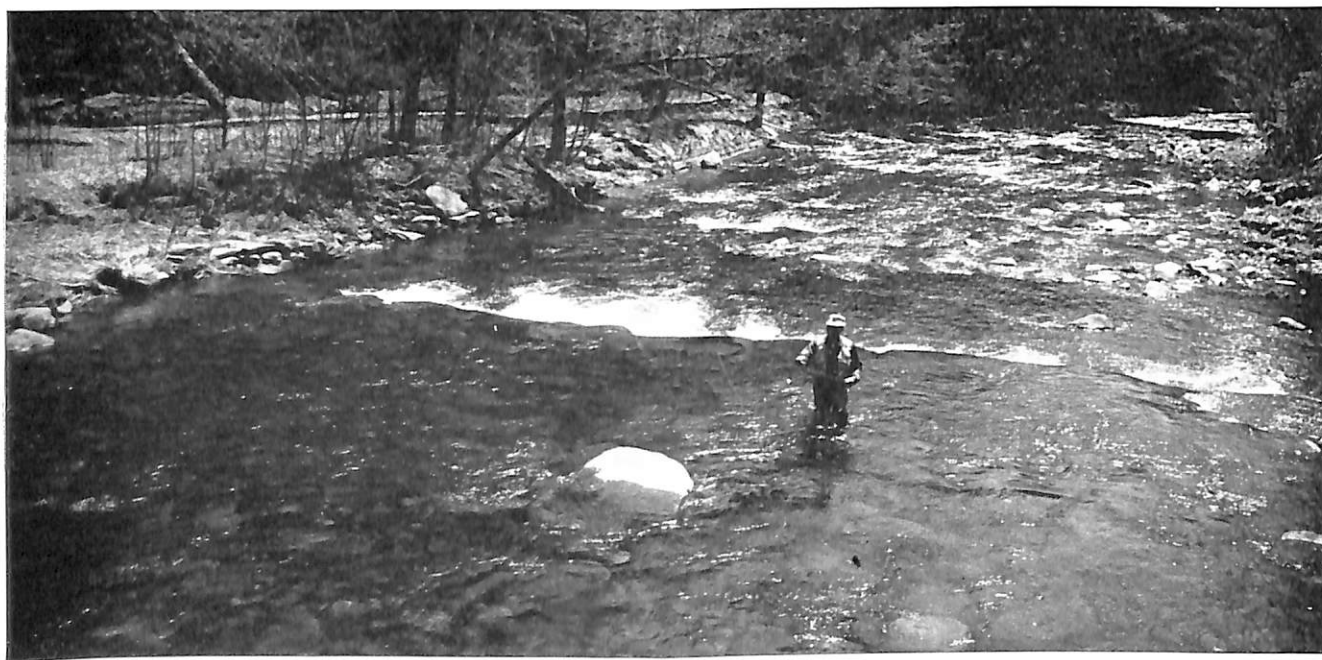
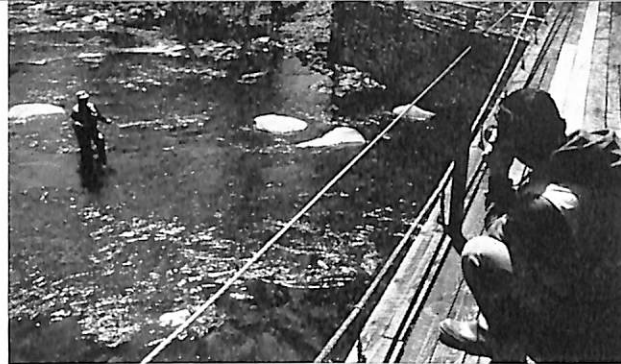
So, today I carry a "studio" of Leica equipment in a case no larger than a shoebox. For quick set-up the camera, normal, telephoto, wide-angle lenses, and accessories are within fingertip reach.

Even beyond its versatility and compactness, I value its ruggedness. My M3 has been subjected to treatment that would (and, on occasion, did) end the useful life of other cameras long ago.

reflex also needed

Despite the excellence of rangefinder operation for general outdoor photography, I *do* need reflex viewing and focusing for close-ups. Details of tiny lures, studies of larvae and other small live bait are all material for my pictures. And for these I pack a Visoflex

WIDE-ANGLE LENS gets the whole picture, and relates subjects to their surroundings. This type of scene is the "establishing shot" of the movie-maker, but needs others to go with it.



housing — the least expensive, most durable and compact answer to my reflex needs.

For my own professional needs, I seek as sharp a print as I can deliver to an editor's desk. In this regard, I've learned not to allow "the ease-of-handling feel," inherent in the Leica body, to lull me into a false sense of steadiness. Whenever possible I brace my camera, using either a light conventional tripod, a table tripod or a monopod. There is a relationship between steadiness and sales! An 8 x 10 print from a 35mm negative magnifies any mistakes 800%!

The all-perfect outdoorsman's camera has not come off the design boards. Ideally, it would have to withstand all temperature extremes, be waterproof, durable enough to live through a fall from a horse, able to utilize a wide range of lenses and still be no bigger than a pocketknife!

I make no prognosis as to the date of such an instrument's arrival. Until then, I'll get along nicely with my M3. It solves most of the perplexing mechanical and optical demands imposed by my photojournalism in the outdoor field. What's more it goes reliably on producing pictures, come hill or high water, which produce checks from editors. This, as any outdoor writer-photographer knows, is the best trick of all!



AUTHOR'S LEICA OUTFIT is completely housed (except for pocketable Braun F 20) in the Benser case in foreground. Comparable 2 1/4" x 2 1/4" outfit required two large cases shown in background.

Leica school notebook / John Brooks

introduction to close-ups

introduction

Close-up work is one of the most fascinating, but least understood branches of photography. As in normal photography, success depends on accurate focus, correct exposure and freedom from movement. The larger image size and longer exposure of close-up photography require attention to the elimination of vibration. A cable release should be used and, where practical, the copying stand should be cushioned by a sponge rubber pad.

Generally, with the lens on the camera, the closest working distance is 3½ feet. To approach closer to the subject and obtain a larger image, the lens must be extended further from the film. Providing this extension, plus a means of focusing and framing, is the sole function of the accessories for close-up photography.

reproduction ratio

Think in terms of ratio of reproduction — not working distance or focal length. If you understand ratio you can determine:

$$\begin{aligned} & \text{Area Photographed} \cdot \text{Exposure Factor} \\ & \text{Depth of Field} \cdot \text{Lens-Subject Distance} \\ & \text{Lens-Film Distance} \cdot \text{Focal Length Required} \end{aligned}$$

Determining Reproduction Ratio:

Ratio is the size relationship between image and object. It may be expressed as a fraction, a proportion or a decimal. It is always determined by dividing the image size by the object size. And the "image size" is always the size of the film format. In the Leica this is 24 x 36mm. In practice you work with only one dimension; either the short side (24mm) or the long side (36mm). (Naturally, when a negative or transparency is enlarged or projected the ratio of reproduction changes. An image which is 1:1 on the negative, for instance, will become 8:1 on an 8 x 10 print.)

Example: Area being photographed is 48 x 72mm (minification or reduction)

Ratio of Reproduction = Image size divided by object size

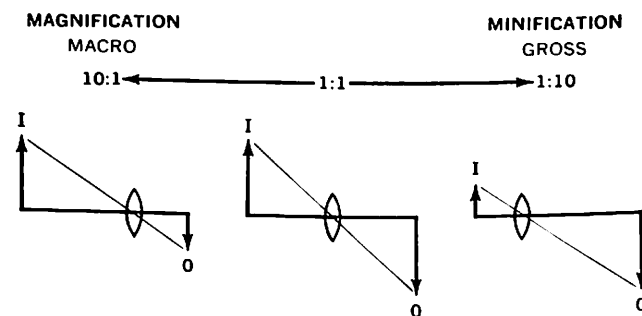
$$\begin{aligned} & \text{or, } 24 \text{ divided by } 48 \text{ (short dimension)} \\ & = 24 \div 48 = 24/48 = 24:48 \\ & = 1:2 = 0.5 \end{aligned}$$

Example: Area being photographed is 12 x 18mm (magnification or enlargement)

$$\begin{aligned} & = \text{Image size divided by object size} \\ & = 24 \text{ divided by } 12 \text{ (short dimension)} \\ & = 24 \div 12 = 24/12 = 24:12 \\ & = 2:1 = 2.0 \end{aligned}$$

The auxiliary Reproduction Devices have ratios (or areas covered) engraved on their extension collars; the Optical Close-Focusing Devices have ratios engraved on the focusing scale. When using Ground-Glass Attachments, ratio is determined by placing a metric rule or graph paper in the plane of the object and noting the number of millimeters that fall within the 24mm or 36mm dimension of the focusing screen. (With the Focoslide, object dimension is measured between two etched lines which are 10 millimeters apart.)

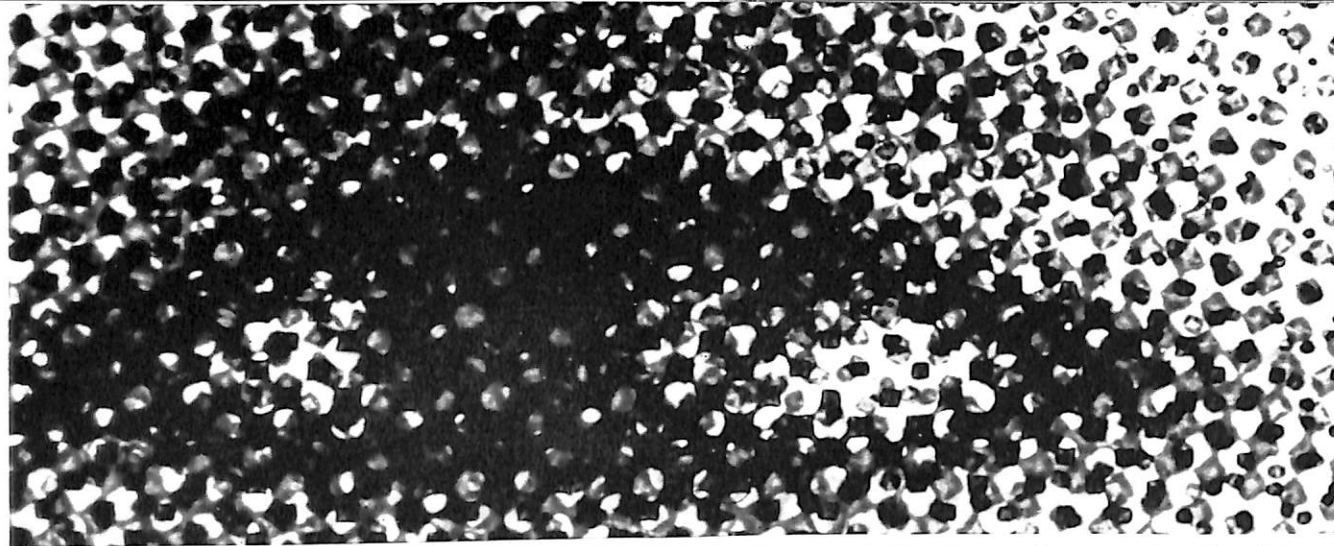
REPRODUCTION RATIO



Minification occurs when the image (negative size) is smaller than the object (area photographed). The lens is always closer to the film than to the object. Magnification occurs when the image is larger than the object. The lens is always closer to the subject than to the film.

Photography at ratios between 1:1 (natural size) and approximately 1:10 (object 10 times larger than negative) is known as GROSS PHOTOGRAPHY.

Photography at ratios between 1:1 and approximately 10:1 (image 10 times larger than object), when using the camera lens without additional optical aids such as a microscope, is known as MACRO PHOTOGRAPHY.



ENLARGED EYE from photo on page 21 is shown at 40:1 ratio. Image is almost unrecognizable when seen from normal reading distance.

Focus is more easily obtained when working at mini-fications by changing the distance between lens and film (using lens mount or auxiliary focusing mount).

Focus is more easily obtained at magnifications by changing the distance between lens and subject (moving entire lens-camera assembly in relation to object). The Rack-&-Pinion Fine Adjustment (Cat. No. 16,564) for the Bellows I and Focoslides is a useful accessory for this purpose. The Bellows II has a built-in fine adjustment.

Determining Area:

The photographic area covered at any given ratio is established by dividing the film dimension by the ratio.

Example: Ratio is 1:2 (minification)

$$1 \div 2 = 0.5$$

Image size divided by ratio = $24 \div 0.5 = 48\text{mm}$ (short side), or $36 \div 0.5 = 72\text{mm}$ (long side)

Example: Ratio is 2:1 (Magnification)

$$2 \div 1 = 2.0$$

Image size divided by ratio = $24 \div 2 = 12\text{mm}$ (short side) or $36 \div 2 = 18\text{mm}$ (long side)

Determining Exposure Factor:

Light varies inversely as the square of the distance from its source. And since the lens diaphragm behaves as a source of light, exposure must be increased with increased extension (distance between lens and film). At a ratio of 1:10 the exposure factor is 1.2X, which is well within the exposure latitude of nearly any film. So, at this and smaller ratios exposure increase may be ignored. But at larger ratios the factor becomes important.

Formula: Exposure Factor = $(\text{Ratio} + 1)^2$

Example: Ratio is 1:2 (0.5)

$$\text{Exposure Factor} = (0.5 + 1)^2 = 1.5^2 = 2.25$$

Multiply meter reading by factor of 2.25.

Example: Ratio is 3:1 (3.0)

$$\text{Exposure Factor} = (3 + 1)^2 = 4^2 = 16$$

Multiply meter reading by factor of 16 (4 aperture stops).

When making exposures of long duration, especially with color film, the reciprocity failure of the sensitized material must be considered and allowed for in the exposure. Reciprocity failure is an apparent violation of the photometric law which states that exposure is the product of the illumination reaching the film multiplied by the time during which it acts. Thus, a half second exposure at f/8 is equal to $\frac{1}{8}$ th second at f/4.

But films often do not react according to this law at extremely short (less than 1/1000th second) or long (10 seconds or more) exposure times. So, the best procedure in close-up work is to determine the correct exposure and then to make a series of "bracketed" exposures both longer and shorter than the recommended one.

The amount of exposure correction needed to compensate for reciprocity failure varies with the type of film and the length of exposure required.

Determining Depth of Field:

As explained in the abstract on Depth of Field in Leica Photography #4, 1961, for practical purposes depth of field in close-up work extends an equal amount from each side of the principal plane of focus. Depth of field for close-up photography is always given as total depth. For example, at a ratio of 1:5 and aperture f/8, total depth is 16mm; eight millimeters in front of and eight millimeters in back of the principal plane.

At a given ratio of reproduction, the only factor affecting depth of field is the lens opening. Focal length and working distance do not enter. For instance, depth would be the same with either a 50mm lens or a 135mm lens if both were used at the same reproduction ratio and diaphragm opening. (Depth of field decreases as the degree of magnification increases.)

The formula, based on ratio, for total depth is:

$$\text{Total Depth} = 2 \times Z \times f / \times \left(\frac{O}{I} \right) \times \left(\frac{O}{I} + 1 \right)$$

Where: Z = Circle of Confusion = 1/30th mm*
(about 1/750th of an inch)

f/ = Diaphragm opening

O = Size of object**

I = Size of image**

*Some prefer to base depth on a circle of
1/40th or 1/50th mm.

**Use either long or short dimension of
object and image. Do not intermix.

Since 2Z (2 x 1/30) is a constant equaling 1/15, the
formula may be rewritten:

$$\text{Total Depth} = \frac{f / \times O \times \left(\frac{O}{I} + 1 \right)}{15 \times I}$$

Example: Ratio 6:1 with aperture f/11
(Magnification)

$$\text{Total Depth} = \frac{11 \times 4 \times (.166 + 1)}{15 \times 24} =$$

$$\frac{44 \times (.166 + 1)}{360} =$$

$$\frac{51.304}{360} = 0.142 = (.14\text{mm})$$

Depth of field doubles as the f/ number doubles. If
total depth at f/8 is 2mm, then at f/16 it will be 4mm
and at f/4 it will be 1mm. When the lens opening is
changed in one stop increments, depth varies in rela-
tion to the square root of two.

Determining Lens-Subject Distance:

There are times, when working at a given ratio, you
may want to know the working distance of the lens.
This is figured as follows:

Divide the focal length by the ratio and add 1 focal
length.

Example: Ratio 1:2 using 90mm lens

$$90 \div .5 + 90 = 180 + 90 = 270\text{mm} = 3 \text{ focal lengths}$$

Determining Lens-Film Distance:

Multiply the focal length by ratio and add 1 focal
length.

Example: Ratio 1:2 using 90mm lens

$$90 \times 0.5 + 90 = 45 + 90 = 135\text{mm} = 1.5 \text{ focal lengths.}$$

Film-Object Distance:

The distance from back of camera to object is the
total of Lens-to-Subject and Lens-to-Film distances.

The table below includes some of the examples given
earlier:

RATIO	LENS-TO-FILM DISTANCE	LENS-TO-SUBJECT DISTANCE	TOTAL
1:10	1f + 0.1f = 1.1f	1f + 10f = 11f	12.1f
1:2	1f + 0.5f = 1.5f	1f + 2f = 3f	4.5f
1:1	1f + 1f = 2f	1f + 1f = 2f	4f
2:1	1f + 2f = 3f	1f + 0.5f = 1.5f	4.5f
10:1	1f + 10f = 11f	1f + 0.1f = 1.1f	12.1f

NOTE: Lens-to-Film distance is measured from the
exit node of the lens and Lens-to-Subject distance
from the entrance node. Position of the nodes are not
known and approximate distances are measured from
the lens diaphragm.

Determining Required Focal Length:

You may be faced with a fixed working distance and
the necessity of photographing at a predetermined
ratio. The focal length of the lens required may be
found as follows:

Example: Working distance (lens-to-subject) 25
inches.

Ratio desired 1:4

Lens-subject distance at 1:4 = 1 focal
length + 4 focal lengths = 5 focal lengths.
(Convert working distance to millimeters.
25 inches equals 635mm.)

Divide working distance by focal lengths required:

$$635 \div 5 = 127$$

You require a lens having a focal length
of 127mm.

In practice you would use the 125mm
Hektor f/2.5 lens which, at 25 inches,
would give you a ratio of 1:4.08.

$$(635 \div 125 = 5.08) (5.08 - 1 = \text{ratio})$$

If you must have a precise ratio, move in
to 24½ inches from the subject.

$$(125 \times 5 = \text{focal lengths required for 1:4 ratio})$$

$$(125\text{mm} \times 5 = 625\text{mm} = 24\frac{1}{2} \text{ inches})$$

At times you may want to know the ratio you will
get with a given extension (lens-to-film distance)
and specific lens.

Example: RATIO =

$$\frac{\text{Lens-to-Film Distance} - 1 \text{ focal length}}{\text{Focal Length}}$$

$$\frac{\text{Bellows I (fully extended) + Visoflex I + 135mm lens} - 270\text{mm Lens-to-Film}}{270 - 135}$$

$$\frac{135}{135} = 1 \text{ (Ratio 1:1)}$$

through the "looking glass"

short focus lenses on the Visoflex II

"Curiouser and curiouser" cried Alice. This particular Alice is the secretary of one of our editorial board members. And she was peering at the ground glass of a Visoflex II with a Bellows and an ordinary 50mm lens on it. But, the sense of wonder that this created for Alice as she looked through it at commonplace objects was every bit as powerful as that felt by the original Alice on the other side of the looking glass.

With a normal or wide angle lens, the other side of the Visoflex's "looking glass" is a close-in world which our eyes could otherwise never see, because of the lamentable shortcomings of human vision. To see the other-worldly head of a bee, life-size, is suddenly to be shrunk to a tiny fraction of one's normal size. It is a revealing and occasionally unnerving experience — and it produces sensationally good pictures in the bargain! In fact, the "secret" of many a good slide show is the inclusion of a generous number of close-ups and ultra close-ups.

An article on the Visoflex II system (Leica Photography #1, 1960) covered the uses of lenses from 65 through 400mm — those lenses normally used with the Visoflex. The Visoflex I, of course, also accepts lenses of many focal lengths for both normal distance and close-up work.

The shorter focal length lenses provide magnification directly on the negative — images greater than life size. Further enlargement of these into prints or projection-screen images reveals unimagined detail in the most commonplace objects. And therein lies the fascination of this facet of the Visoflex personality.

larger than life

Leitz close-up and copying equipment is so versatile and so varied that there are literally scores of ways to achieve a greater than 1:1 image/object ratio on the negative. To keep this article within practical

bounds, we will consider only a few as guideposts. Specifically we will examine the Visoflex I and Visoflex II, with and without their respective Bellows attachments. (Far more flexibility is achieved with the Bellows than by direct attachment of the short-focus lenses directly to the Visoflex or extension tubes. In the latter situations, the focusing range is limited to the movement of the lens mount.) And in the case of the Visoflex II, we will consider various extension tubes and focusing mounts which are accessories to it. For the most part, the accompanying charts cover the 35 and 50mm lenses, although in one or two cases, the 90mm lens unit is listed when it will yield mild magnification. It is possible also to use the 28mm lens, but working distances become inconveniently short.

Visoflex I

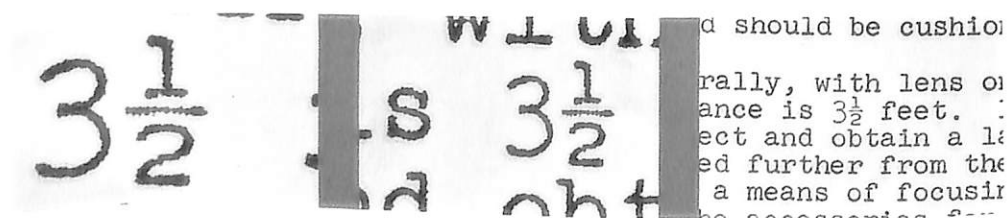
Chart I gives the ratios of reproduction and the exposure factors for the various magnifications possible using the Visoflex I, the Bellows I and extension tubes in several combinations. A glance at the chart shows that magnifications range from 1.2 to 6.20:1 — depending on the lens-and-accessory combinations used.

Chart I by no means exhausts the possibilities of the Visoflex I with the short lenses. It is possible, for instance to use the Bellows in combination with extension tubes to reach even higher magnifications. But limited space prevents covering every potential combination of equipment.

Visoflex II

The Visoflex II (or IIa) boasts several accessories which fit it for use with screw-mounting as well as bayonet-mounting lenses.

Fastening directly to the Visoflex II is Extension



CONTACT PRINTS show reproduction ratios of 5.6:1, 3.2:1 and 1:1 as produced by the 35mm, 50mm and 90mm lenses respectively. Exposure factor becomes increasingly important as ratio is increased beyond 1:10.

VISOFLEX I AND S/M LENSES

ACCESSORY	LENS					
	35mm		50mm**		90mm†	
	Ratio of Reproduction	Exposure Factor	Ratio of Reproduction	Exposure Factor	Ratio of Reproduction	Exposure Factor
VISOFLEX I ONLY	1.8:1	7.8X	1.2:1	4.8X	—	—
VISOFLEX I AND ONE 15mm EXT. TUBE	2.2:1	10.25X	1.5:1	6.25X	—	—
VISOFLEX I AND TWO 15mm EXT. TUBES	2.6:1	13X	1.8:1	7.8X	—	—
VISOFLEX I AND BELLOWS I WITH ADAPTER #16,590	2.36 — 6.20:1	11.3X — 51.8X	1.60 — 4.20:1	6.75X — 3.6X	.93 — 2.43:1	3.7X — 11.7X

VISOFLEX I with several popular combinations of equipment offers magnifications on the negative ranging from 1.2 to 6.20:1. Many other combinations are also possible, using other extension tubes, to produce other ratios of reproduction. Adapters are available to fit the Bellows I with the lens units of both the 90mm Elmar and Elmarit as well as various bayonet-mounting lenses.

VISOFLEX II

ACCESSORY	LENS					
	35mm		50mm**		90mm†	
	Ratio of Reproduction	Exposure Factor	Ratio of Reproduction	Exposure Factor	Ratio of Reproduction	Exposure Factor
VISOFLEX II + #16,469 AND BAYONET-MOUNT LENSES*	1.4:1	5.76X	1:1	4X	—	—
VISOFLEX II + #16,464 + #16,473 AND S/M LENSES	2.2 — 3:1	10.24X — 16.81X	1.5 — 2.3:1	6.25X — 10.89X	—	—
VISOFLEX II + #16,464 + #16,473 + ONE 15mm. EXT. TUBE	2.6 — 3.4:1	13X — 19.4X	1.82 — 2.4:1	8X — 11.6X	1 — 1.3:1	4X — 5.3X
VISOFLEX II + #16,464 + #16,473 + TWO 15mm. EXT. TUBES	3.0 — 3.8:1	16X — 23X	2.1 — 2.66:1	9.6X — 13.4X	1.3 — 1.5:1	5.3X — 6.25X
VISOFLEX II + BELLOWS II + S/M LENSES + ADAPTER #16,590	1.7 — 4.4:1	7.3X — 29X	1.1 — 3.0:1	4.4X — 16X	.63 — 1.7:1	2.6X — 7.29X
VISOFLEX II + BELLOWS II + BAYONET LENSES + ADAPTER #16,596	2.1 — 4.8:1	9.6X — 33.6X	1.4 — 3.2:1	5.75X — 17.6X	—	—

* Bayonet-mount lenses can be used directly on the Visoflex but the use of Extension Tube #16,469 is recommended. † Rigid Elmar in Focusing Mount.

** While it is possible to use the f/1.4 and f/1.5 50mm lenses for extreme close-up work, it is not recommended.

VISOFLEX II with Adapter #16,466 is adaptable for limited use with standard screw-threaded lenses and extension tubes. And these can be used with the Bellows II by means of Adapter #16,590. Bayonet lenses are also useable on the Bellows II with Adapter #16,596. The Universal Focusing Mount #16,464 accepts screw-threaded extension tubes and lenses by adding Adapter Tube #16,473.

Tube #16,469 which accepts bayonet-mounting Leica lenses (or the 28mm screw-mounting lens fitted with Bayonet Adapter #14,097). This arrangement offers magnifications of 1.4:1 and 1:1 for the 35 and 50mm lenses respectively, as shown in Chart #2.

By adding Adapter Tube #16,473 to Universal Focusing Mount #16,464, you can use *screw-mounting* Leica lenses on the Visoflex II for close-up work.

The 35 and 50mm lenses offer magnifications of from 1.5X to 3X, depending on the focal length and the extension of the focusing mount (see Chart #2).

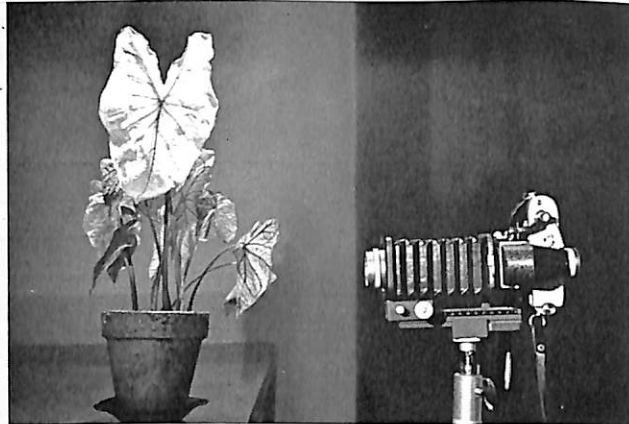
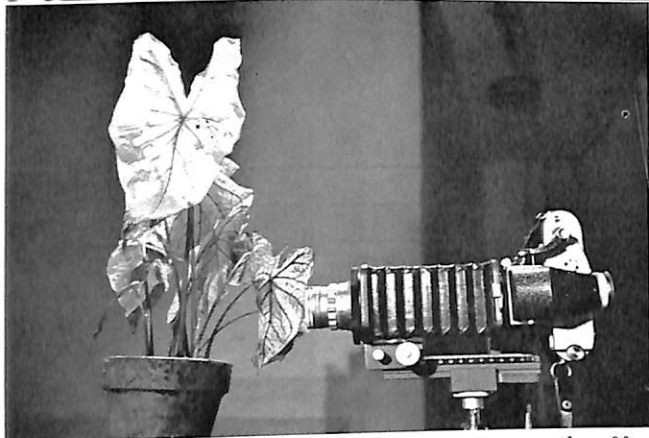
Since things equal to the same thing are equal to each other, it follows that Adapter Tube #16,473 will accept the 7mm-90mm screw-threaded Leica extension tubes as well as lenses. These provide extra extension and, thus, extra magnification. Space permits Chart #2 to list data for only one and two 15mm

extension tubes used with Adapter #16,473. Obviously, many other combinations may be used as well.

Bellows II

Adding the Bellows II to the Visoflex II (or IIa) also adds versatility, extra extension and continuous focusing. It also offers rack-and-pinion fine-focusing which is a tremendous convenience in larger-than-life photography. It permits focusing of the whole camera-bellows-lens combination as a unit. This in turn means that bellows extension and ratio of reproduction can remain constant as fine-focusing is accomplished.

Two Adapter Rings (#16,590 and #16,596) are used respectively to fit screw- and bayonet-mounting 35 and 50mm lenses to the Bellows II for magnification on the negative.



AT GIVEN RATIO, 50mm (l.) offers less working distance than 90mm. But at same bellows draw, shorter lens gives more magnification.

do-it-yourself

Charts #1 and #2 give useful data for a few popular combinations of close-up equipment. But the possibilities for other combinations are vast. How can you figure out these data for your specific setup? One of the simplest ways, if you are using ground-glass equipment such as the Visoflex, is to put a ruler in place of the subject and then examine and measure its image on the ground-glass. (Take the magnifier off the ground-glass so that you can lay another ruler alongside the image.) If the ground-glass image of, say a $\frac{1}{8}$ -inch distance actually measures $\frac{3}{8}$ ths of an inch long, the ratio of reproduction of 3:1. That is, it is the image size divided by the object size.

If you think in terms of ratio of reproduction you can easily determine many other pertinent data useful for close-up work, and for any combinations of equipment. How to do this and other calculations for close-up exposures is covered on page 15 in "Leica School Notebook."

exposures

It is beyond the scope of this article to examine exposure techniques for close-up photography. However, we should point out that as bellows (or extension tube) extension increases, extra exposure is required. The relative aperture of the lens is no longer its actual aperture and exposure allowance must be made. This is also explained in the "Leica School Notebook," story in this issue. An article in Leica Photography No. 2, 1960 discusses flash techniques for close-ups and there is other useful infor-

mation in such books as "The Leica Manual and Data Book," "The Leica Way," and the new "The Leica and The Leica System" — all of which are available from Franchised Leica Dealers.

Another factor which influences exposure in close-ups is the failure of the law of reciprocity or "reciprocity failure." The law of reciprocity states, in effect, that $f/8$ at $1/100$ th is the same exposure as $f/11$ at $1/50$ th or $f/5.6$ at $1/200$ th. In other words, exposure is the product of the strength of the light falling on the film multiplied by the time it falls there. And when the light strength is halved and the time doubled, or vice versa, the exposure remains constant. This is true for the most part, but when exposure durations become extremely short or extremely long, the law "fails." That is, exposures do not follow the expected pattern. The often-long exposures of extreme close-up work sometimes call for compensation — by lengthening the exposure in the case of black-and-white, or by adding both time and color compensating filters for color films.

The safest procedure is first to determine the proper exposure for a given picture by calculating and applying the factor of bellows extension. Then make a series of bracketed exposures based on this exposure. One of these will be correct.

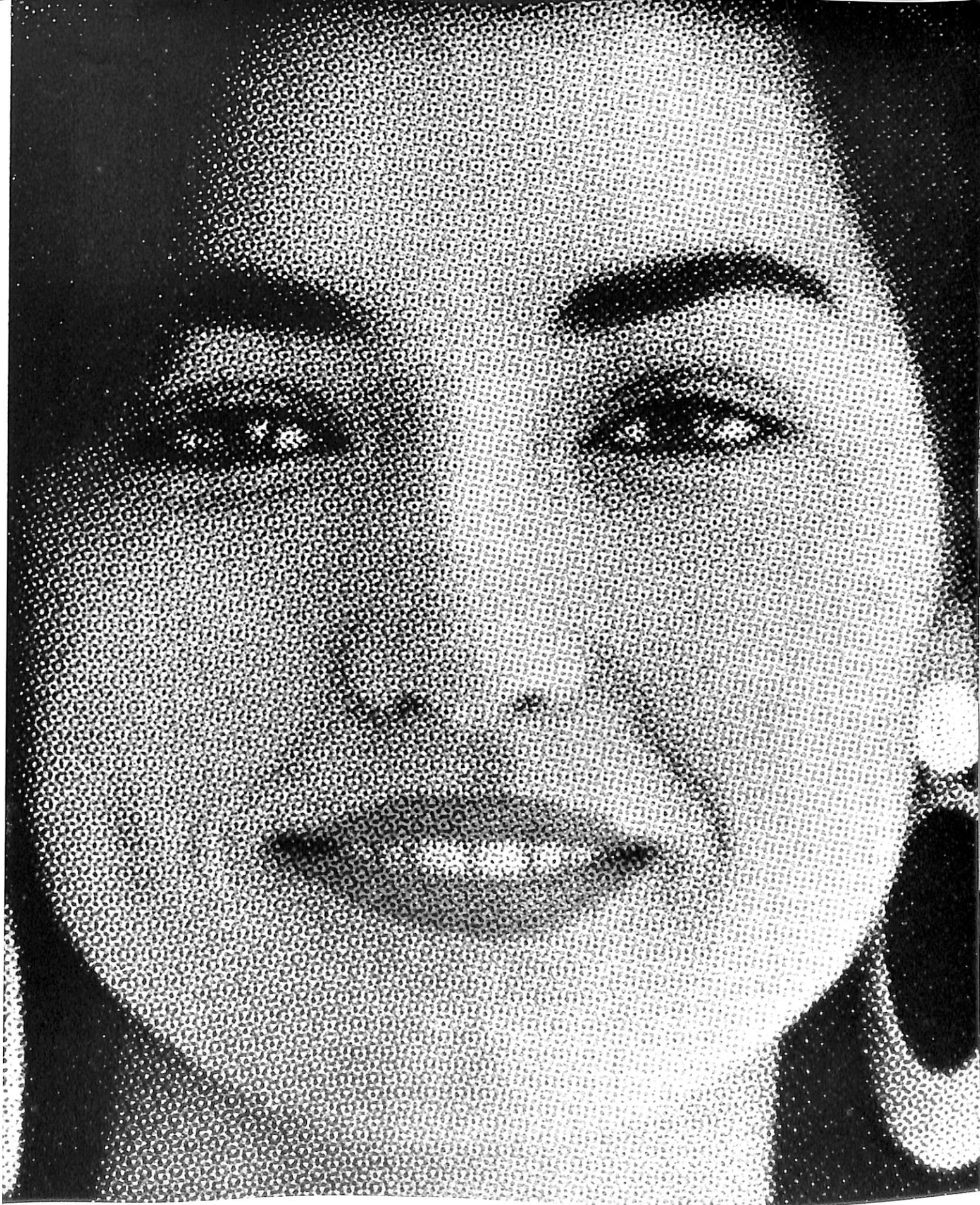
Color film is a bit more complicated to handle due to the color shift which may occur with long exposures. But by experimenting and keeping notes you will soon build a reference notebook which can help you solve filtration and exposure problems in future similar situations.

HALFTONE engraving copied at about 5.5:1 shows characteristic dots.



BLACK LEICA shutter dial was photographed with Visoflex II, Bellows and the 50mm lens. Extra exposure was given to provide for dark color (low reflectance) of subject.





STRAIGHT PHOTOGRAPH of a four-color halftone reproduction shows an effect like a texture screen when seen at about 5:1 ratio.

one-lens assignment / Seymour Linden

the 35mm did the entire job

Before I left on a recent assignment for Encyclopedia Britannica, I wouldn't have taken a dare to shoot the assignment the way I finally did. But it worked out beautifully.

The job: to get pictures of the Washington, D.C.-Georgetown area — scenics, famous landmarks, interiors, exteriors. In short, I was after a group of pictures of the type that a tourist or visitor might like to bring back home — and one which would call for a battery of lenses with different focal lengths. Or so it seemed.

And so I took with me two Leicas (one for slow flim, one for fast) and 35mm, 50mm, 90mm, 135mm and 200mm lenses.

discovery

But a strange thing happened as I began framing my first few pictures in the bright-line finders of the Leica, using the "preview" lever to choose the proper lens. All the pictures looked best through the 35mm frame!

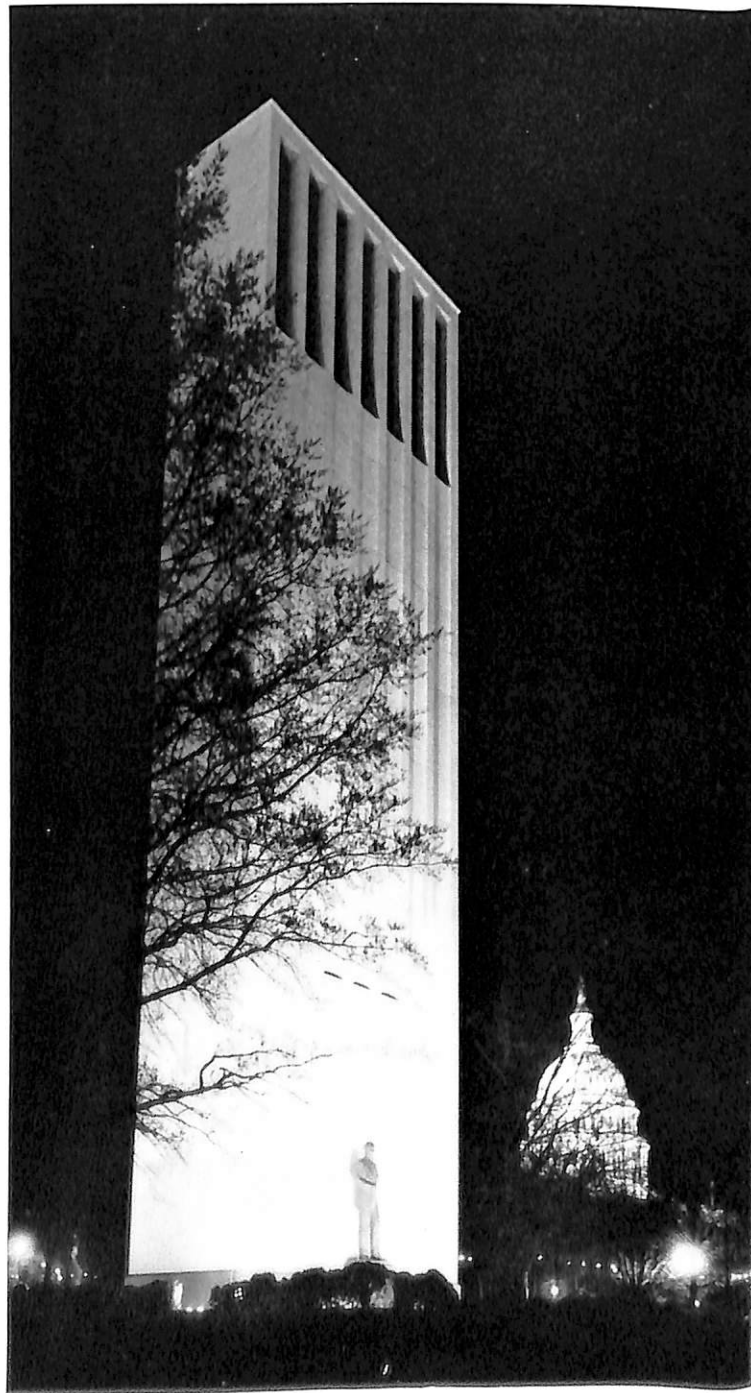
This phenomenon continued as I went from outdoor shots to interiors taken by existing light. Shortly the Moment of Truth arrived, and I smiled to myself. I was going to do the whole assignment — and do it right — with only my 35mm Summicron and the two Leicas!

For some low-lit interiors naturally, I called on my tripod for steady support in making time exposures using small apertures to produce a great depth of field.

permission to shoot

Although I carried with me a letter of recommendation, I found that I really didn't need it. I did, however, make it a point — especially when I planned to set up a tripod — to introduce myself to the man in charge and ask permission to work there. Almost invariably the permission was given with but one stipulation — no stand lights and no flash. Naturally, with the $f/2$ Summicron 35mm, I didn't need them anyway.

Since I was taking pictures in buildings and areas which millions of tourists and amateur photographers visit every year, attendants in these places were used to seeing someone with a small camera around





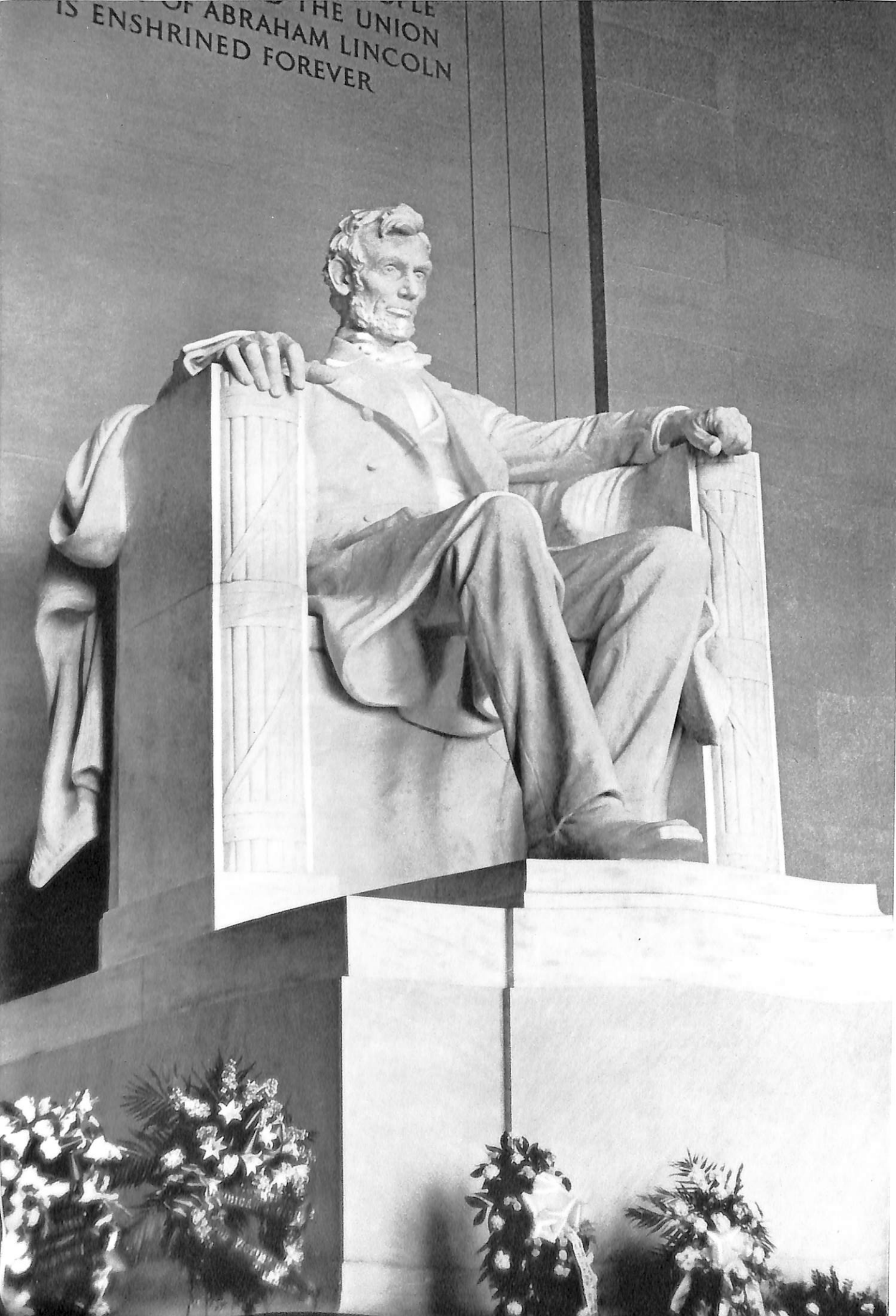
U. S. Capitol Building

◀ **Taft Memorial and Capitol**

National Gallery of Art



THE PEOPLE
OF ABRAHAM LINCOLN
IS ENSHRINED FOREVER



Lincoln Memorial



Georgetown Barge Canal

his shoulders, and I was almost never bothered while working.

This assignment was particularly interesting to me, because, in effect, I approached it as a professional and ended up shooting it with the easy-going approach of a tourist-amateur, thanks to the versatile 35mm wideangle lens.

No, I'm not planning to swap my group of interchangeable lenses for a single focal length. But anyone who must travel light (especially a tourist or vacationer) without spoiling his chances of getting every picture he wants, should try putting a 35mm on his camera and leaving it there for the rest of the trip!

Folger Shakespeare Library



focusing on...

books. "Leica Pocket Companion" by Joseph D. Cooper is one of a series of "companions" for a number of cameras which are being published by Universal Photo Books. Price is \$1.95. A little less than half of the 96-page book is a compact presentation of Leica data which are available elsewhere, but which are presented here in a handy and organized form. Remainder of the book covers films, filters and the etceteras of general photography. A neutral gray test card, useful for making exposure readings, is bound into the book. The "Companion's" small size makes it a useful pocket or gadget-bag reference.

more books. Speaking of books, we have just seen a whole series of nature books for children, illustrated with Leica color photos. Most interesting is the fact that the author of both text and pictures — Mrs. Ellen Fenlon Tobin, of Akron, O. — is a grandmother who took her first photograph only 10 years ago.

Mrs. Tobin's work was recently featured in "Camera 35" and is also scheduled for the July-August issue of the Audubon magazine. Her nature books, published by The Saalfield Publishing Co., Akron, are authored under the name of Ellen Fenlon. Each tells a story for small children and is completely illustrated in color. Both paperback and hard-bound editions will be available, the former at 29 cents a copy, the latter at \$1.00. The color reproductions are quite satisfactory especially in view of the modest price of the books. And the children to whom they are addressed will be fascinated by the way in which Mrs. Tobin has combined fantasy in the text with beauty and instructive realism in the pictures. Titles of the first four books in the series are "The Fairy Church In The Woods," "Signs Of The Fairies," "Little Birds In A Nest" and "A Woodland Circus."

international Leica contest. The Berlin Leica School invites amateur and professional photographers the world around to participate in its second international photo contest.

The contest will be divided into two groups: black-and-white and color. Color entries must be transparencies — not prints. And all pictures are to have been taken with Leica equipment.

Closing date for entries is September 30, 1962. Requests for applications and further information should be sent *directly* to the Berlin Leica School, Hohenzollernstrasse 1, Berlin-Zehlendorf, Germany.



Canadian anniversary. The Ernst Leitz, Canada factory at Midland, Ontario celebrated its 10 birthday last May. More than 75% of the factory's production is now exported to some 80 countries. And five of the seven Leica lenses it produces are not made elsewhere. Shown (l. to r.) are Rudolf Maschke, Publisher of "Camera 35," Augustus Wolfman, Publisher of "Modern Photography" and Bruce Downes, Editor and Publisher of "Popular Photography" who attended the celebration.

Benser tour. A U.S. tour this fall by photo-lecturer Walter Benser has just been announced. In 1963, he will visit cities not reached this Fall. No details yet, but your Leica dealer will have them as soon as they are available. Benser's tentative Fall itinerary (subject to change) is:

Mon., Oct. 1 <i>Portland, Me.</i>	Tue., Oct. 23 <i>Pittsburgh</i>
Tue., Oct. 2 <i>Hanover, N. H.</i>	Wed., Oct. 24 <i>Reading</i>
Wed., Oct. 3 <i>Boston</i>	Thu., Oct. 25 <i>White Plains</i>
Thu., Oct. 4 <i>Pittsfield</i>	Fri., Oct. 26 <i>New York</i>
Fri., Oct. 5 <i>Philadelphia</i>	Mon., Oct. 29 <i>New Haven</i>
Sat., Oct. 6 <i>Wilmington</i>	Tue., Oct. 30 <i>Hartford</i>
Mon., Oct. 8 <i>Baltimore</i>	Wed., Oct. 31 <i>Providence</i>
Tue., Oct. 9 <i>Washington, D. C.</i>	Thu., Nov. 1 <i>Ridgewood, N. J.</i>
Wed., Oct. 10 <i>Norfolk</i>	Mon., Nov. 5 <i>Seattle</i>
Thu., Oct. 11 <i>Richmond</i>	Tue., Nov. 6 <i>Seattle</i>
Fri., Oct. 12 <i>Harrisburg</i>	Wed., Nov. 7 <i>Portland</i>
Mon., Oct. 15 <i>Akron</i>	Fri., Nov. 9 <i>San Francisco</i>
Tue., Oct. 16 <i>Detroit</i>	Sat., Nov. 10 <i>Sacramento</i>
Wed., Oct. 17 <i>Milwaukee</i>	Mon., Nov. 12 <i>Oakland</i>
Thu., Oct. 18 <i>Highland Park</i>	Tue., Nov. 13 <i>Pacific Grove</i>
Fri., Oct. 19 <i>Chicago</i>	Wed., Nov. 14 <i>Santa Barbara</i>
Sat., Oct. 20 <i>Indianapolis</i>	Thu., Nov. 15 <i>Santa Monica</i>
Sun., Oct. 21 <i>Dayton</i>	Fri., Nov. 16 <i>San Gabriel</i>
Mon., Oct. 22 <i>Columbus</i>	

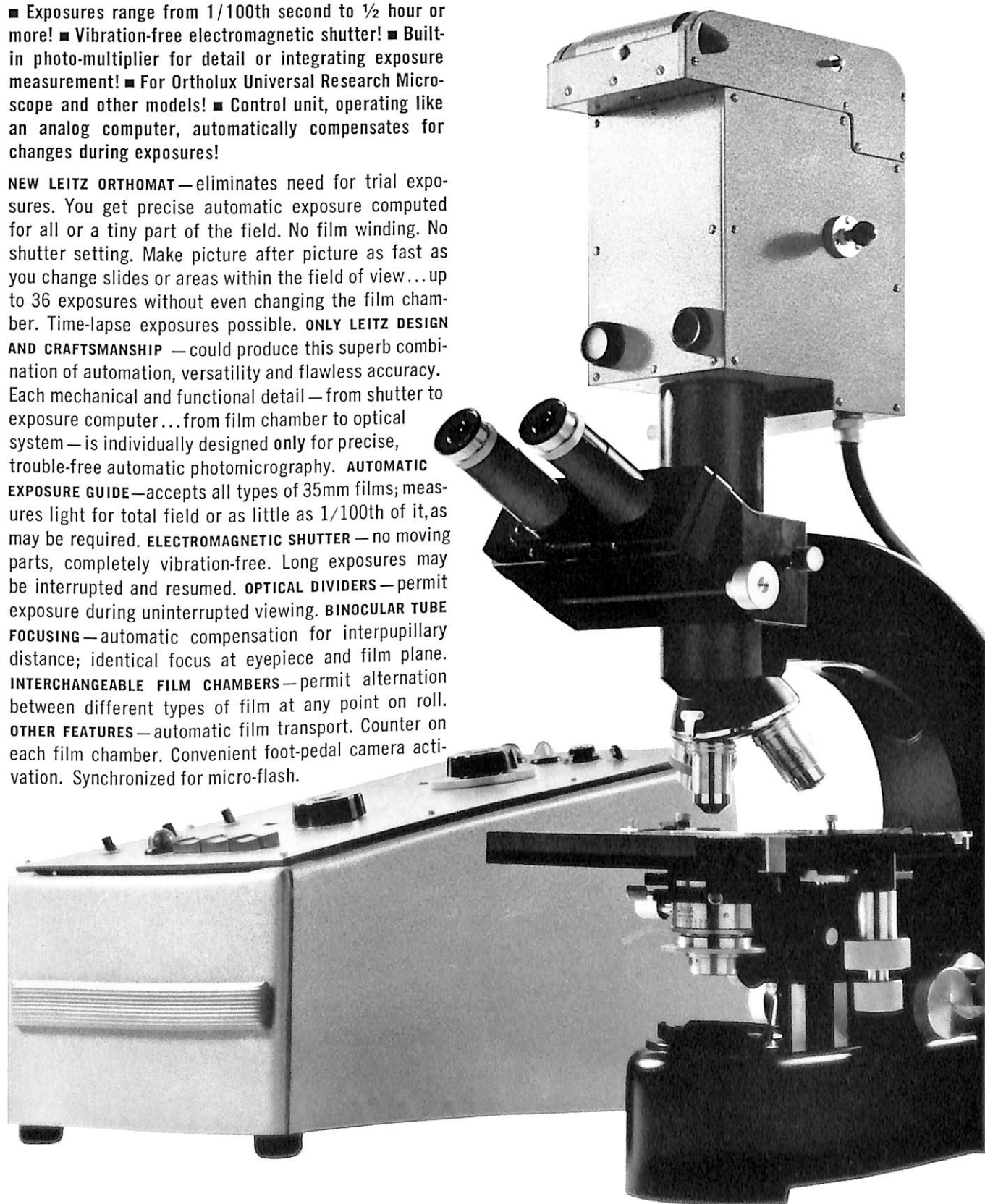
back issues. Your response to our mention of available back issues of Leica Photography has been so great that several issues are completely sold out. Still available are: Fall and Winter 1956 and Spring, Summer and Fall 1957 at \$0.25 each for domestic and \$0.50 for foreign orders. Summer, Fall and Winter 1958, Spring and Fall 1959, all of 1960 and Summer, Fall and Winter of 1961 are available for \$0.40 and \$0.80 respectively.

Send requests and payment to the Circulation Dept., Leica Photography, c/o E. Leitz, Inc., 468 Park Ave. S., New York 16, N. Y.

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better pictures than we've ever had. The boys on the staff tell me they couldn't be happier with the equipment."